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ABSTRACT

This paper presents the overall conceptual framework in which information gathered and stored by computers can be transformed into a comprehensive planning system useful in administrative decisionmaking. Identified and discussed are information needs (enrollment, costs, resources, and measurements) and a sample system (STEP - System for Trenton's Educational Planning). An extensive bibliography is included. (Author)

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Identifies PPBS; Educational Administration and Management; Planning; Systems Analysis; Computers

Summary This paper presents the overall conceptual framework in which information gathered and stored by computers can be transformed into a comprehensive planning system useful in administrative decision-making. Identified and discussed are information needs (enrollment, costs, resources, and measurements) and a sample system (STEP - System for Trenton's Educational Planning). The paper also provides a bibliography.

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Administrative Decision-Making

and

Computer-Based Planning

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by

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of
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Paper presented at the Third National PPBS (Planning-Programming-Budgeting System) Conference, New York Hilton, November 16, 1973.

P R E F A C E

This paper formed the basis for a presentation made at the Third National PPBS (Planning-Programming-Budgeting System) Conference, chaired by Dr. Harry Hartley, Dean, School of Education, University of Connecticut, Storrs. Taking place at the New York Hilton on November 16, 1973, the conference brought together practitioners in PPB. Over 250 people attended and questioned those of us who made presentations.

The presentation and this paper are based on my experience as project director of "Building a Comprehensive Planning System with EPPBS, a Title III ESEA project, and now as a college professor teaching educational administration and systems analysis.

I believe the paper is particularly useful to the administrator attempting to grasp and control the impact which the computer and systems technology are having upon public schools today at an ever-increasing rate.

Dr. David E. Weischadle

It was not so many years ago that the educator could maintain his charge of administering the public school system in his head. His budget was small; his personnel were few. However, in the last twenty-five years, rapid expansion has swamped many old schoolmasters; resulting in some school systems going on the brink of "bankruptcy."

Enlightened schoolmen have turned to new technology to help them in their task of managing their complex and varied operation. With budgets in the millions, educators have found that a school system cannot be managed by the "seat of your pants" or by simply "good common sense."

Increasing, schoolmen are turning to the computer to help them in making decisions in public education. Many realize frankly that their past decisions have been less than successful and have cost substantial numbers of tax dollars. Of course, the taxpayer has become aware of this fact. In turn, they have called for more accountability on the part of schools.

Schools have tried to respond with such things as PPBS (Planning-Programming-Budgeting Systems), MBO (Management-By-Objectives), and other such approachs. However, for any of these to operate effectively, a ready supply of information that is accurate, timely, and reliable is needed.

Computers can provide two very useful functions for the schools. One is the storage and retrieval of information in a variety of forms. The other is the function of simulation and projection. When combined, these two functional aspects of the computer provide the schoolman with a comprehensive planning system which enables him to assess current efforts, set specific goals in view of the assessment, design projects to meet new goals, evaluate alternative efforts to meet the objectives, and combine goals, programs, and dollar costs.

Information Needs:

To effectively operate a school system, the chief administrator and his staff need a variety of information. For discussion purposes, these needs can

be grouped in four categories: Enrollment; Costs; Resources; and Measurements.

Enrollment. The singular purpose for the existence of a school system is to educate youngsters, hence it is vital and essential that the schools know as much as possible about its clientele. It would seem to be a simple task to maintain records of its enrollment. However, in fact, it is a substantial task, for youngsters "come and go." Each day new youngsters enroll in school, while others drop out. Each year, a whole new group of kids enter, while another graduates.

In addition, the character of a district's enrollment also changes ethnically; some slowly, some rapidly. Thus, enrollment data is important in terms of trends. Such trends are foundations to projections, particularly in terms of enrollment changes which may effect staffing pattern, program content, and special requirements (e.g., adding of Spanish bilingual programs where trends indicate a rising Spanish population).

Similar, enrollment data may show decreasing rates, indicating that new buildings (except to replace old buildings) may not be needed. Similarly, staff and services also need to be decreased if student population is decreasing.

With enrollment data computerized, such tasks as described above become routine. Printouts can provide data in a variety of forms. Combined with census information and sending districts, estimates can be made for as many as five-years, thus providing planners with a perspective of things to come.

Costs. What it costs to operate a school system is indeed an important consideration. Unfortunately, costs are not readily available due to delays in posting or processing. Encumbrances many times need to be returned to the available amount of money for spending. When manually performed, the multiple tasks associated with such functions are monumental.

Computers have long handled these functions for businesses. Payroll, personnel files, charts of accounts, purchasing, and other accounting functions are only now being put into computers by educational organizations. It is no

wonder that schools are for severals months closing its accounts, hoping that the auditors do indeed find out that they have enough money to meet their outstanding bills.

With outdated line item budgeting, schools have had little need to be more businesslike. Only with revision of Handbook II by the US Office of Education, has the concept of program budgeting become a reality to be faced. In addition, many states have instituted legislation callings for accountability.

With better cost-controll through computers, it is possible to provide prompt and reliable data for projection purposes. The computer can printout data and with appropriate programs project these costs over several years in the future. Doing so enables the schoolman to determine the effect of continuing current educational activities in terms of costs.

Resources. Closely aligned with cost is resources or funds received to operate the schools. As budgets rose to millions, resources increased in variety, with change taking place in shares provided by state, federal, and local governments. Also, funding became contingent on internal variations, e.g., state matching local funds.

Even more crucial is the application of tax rate on local property tax. As budgets are put together, the evolving "bottom line" puts a burden on the local property holding. The question then arises as to how much can the taxpayer take before he will vote down the budget? How much will the local governing body accept? With the assistance of the computer, the budget-makers can play the "what if" games long before they meet the public.

Projection of resources provide the all important comparison of income vs. spending. When the latter outstrips the former, the enterprise, be it business or educational, is on its way to trouble. Clearly, the projection of enrollment, costs, and resource provides the schoolman with vital data for decision-making.

Measurement. While the collection and projection of such data is useful, schoolmen must concern themselves with evaluation--evaluation of their

educational activities as they relate to cost. The average district performs a variety of measurement operations, however, they are seldom placed in perspectives to cost. In addition, many collecting operations are scattered and used for isolated reports. Districts need to identify measurement data on students, staff, and the district in general; organize and collect it for the computer; and generate current status.

Once again, trends can be established to show what outputs can be expected if the same educational activity is conducted. Similarly, simulation can be utilized to determine the effect of a proposed new program. It is also possible to interface these measurement projections with those of enrollment, costs, and revenues.

A Comprehensive System:

In an effort to utilize much of the above, and provide hard data to support the effectiveness of ongoing and proposed programs, the Trenton (New Jersey) school district established a Division of Research, Planning, and Evaluation. This new office began the development of an educational planning system, utilizing several Planning-Programming-Budgeting System (PPBS) techniques.

Funded by Title III ESEA, the office was designed to develop a fully operational planning system. This planning system will provide the Superintendent, his staff, and the Board of Education with a strategic planning system for making policy decisions and allocating resources; involving the community, local agencies, parents, students, and the district's instructional staff in the making and implementation of decisions regarding educational priorities; and reorganizing the planning and data collection services of the district under a director of planning.

The foundation of the system is STEP--System for Trenton's Educational Planning. STEP consists of six key elements:

1. Annual Assessment -- a thorough and complete review and collection of planning information concerning students, staff, revenues, cost, expenditures, and "Indicators of Quality."

2. Base Case -- a description of where we now stand in terms of all this data, and the projection of this information over the next five years.

3. Priority and Goal Setting -- based on the information in program form, decision-makers review current levels and decide (based on community, staff, and student input) the desired levels over the next five years.

4. Project Design -- representatives of the community, staff, and student body will develop projects aimed at achieving the desired levels established in prior stages.

5. Review and Evaluation -- the various alternatives offered in the project design stage will be reviewed and evaluated in terms of their impact on goals, cost-effectiveness, and their five year implications.

6. Approval -- resulting from the evaluation will be an approved set of established programs and selected alternatives to modify that program to meet the new priorities set. Only when this stage is complete will a budget result.

A prime factor throughout the whole system of STEP is that last year's budget no longer makes educational decisions for this year. Planning takes place first, and then the new budget results. Equally important, however, is the fact that goals and objectives are stated publicly and explicity, and in a measureable form. And, in turn, decisions are based on a consideration of alternative means for achieving desired ends.

Based on the Trenton Community Survey, the Trenton school district identified over 20 key concerns of the community. These concerns were then transformed into measures or scales, called Indicators of Quality. These Indicators were preference measures which the community in general could use to evaluate their schools.

Typical of these Indicators is the local drop-out rate. At present, the rate of youngsters dropping out of school in grades 10 through 12 passes the 17% level. If current educational programs remain the same, that rate should rise. Based on additional input by the community, staff, student body, and a special task force, a desired level for a five-year period was set at 5%. In effect, the school district had a clear, measureable objective to accomplish -

close the gap between the 17% anticipated level and 5% desired level. It is this type of objective which a project design team of community, staff, and student body can use to develop alternative educational projects.

In general, Trenton Public Schools using STEP can assess itself on these Indicators, forecast what will happen if no policy changes are made, set desired levels for selected Indicators, and choose the most economical way of closing the gap between anticipated and desired levels.

In support of STEP are an array of computer programs aimed at forecasting and projecting such vital information as costs, resources, revenues, and enrollments. Such planning information therefore can be used to make decisions and analysis, for the programs also contain historical data.

As a result of STEP and its annual planning cycle of activities, the district will realize, at a minimum, the following benefits:

- an analysis of last-year's budget in a program-budget form
- a five-year forecast of all costs
- a five-year enrollment forecast for the school district
- an adjusted forecast of costs based on enrollments
- a profile of the school system on its own Indicators
- a five-year projection of the gap between anticipated and desired levels on those Indicators
- the costs and probable effects on Indicators of various project alternatives

A key aspect in the development of the planning system has been the involvement of educational, community, and government agencies during the design stages. No other project of this type has provided for the continuous input from agencies operating in conjunction with the school district, both directly and indirectly. Active in this group, called the Technical Task Force, have been the N.J. Department of Education (Office of Management Information, Office of Planning, and Office of Urban Education), N.J. Department of Community Affairs (Division of Youth), Model Cities, United Progress Incorporated, Research for

Better Schools (Philadelphia), Trenton Education Association, Trenton Federation of Teachers, Association of Administrators and Supervisors, N.J. Urban Schools Development Council, and City Government Administration.

The evolvement of STEP is very much of the result of local involvement and outside assistance. Government Studies and Systems (Philadelphia) was instrumental in providing the initial technical assistance to local school staff. Our staff gained the skills, the consultant reduced their involvement.

Summary:

Clearly, the development of STEP serves as an important example of how educators must come to grips with their growing changes. Large budgets, staff, and student bodies mandate the use of technology. Only more efforts like those conducted in Trenton will lead to more effective use of computers in educational decision making.

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